

## ABSTRACT OF THE DISCLOSURE

Active millimeter-wave imaging systems can include an antenna apparatus configured to transmit toward and receive from a subject in a subject position, electromagnetic radiation. A controller can include a transceiver configured to operate the antenna apparatus and produce an output representative of the received radiation, and a processor adapted to convert the transceiver output into image data representative of an image of the subject. The antenna apparatus may move in a partial or continuous loop around the subject, toward or away from the subject, or in an opposite direction to an associated antenna apparatus. Antenna units in the antenna apparatus may be oriented at different angular positions along an array. Antenna arrays may also be formed of a plurality of array segments, and a group of arrays may be combined to form an antenna apparatus.